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Agrément Certificate
07/4427
Product Sheet 2

BALLYTHERM INSULATION

BALLYTHERM BTDL DRY LINING BOARD INSULATION

This Agrément Certificate Product Sheet⁽¹⁾ relates to Ballytherm BTDL Dry Lining Board Insulation, comprising foil/kraft paper faced rigid polyisocyanurate (PIR) foam boards bonded to plasterboard, for use as an internal insulated dry lining to improve the thermal insulation of solid or cavity masonry walls, in existing and new dwellings and similar buildings.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

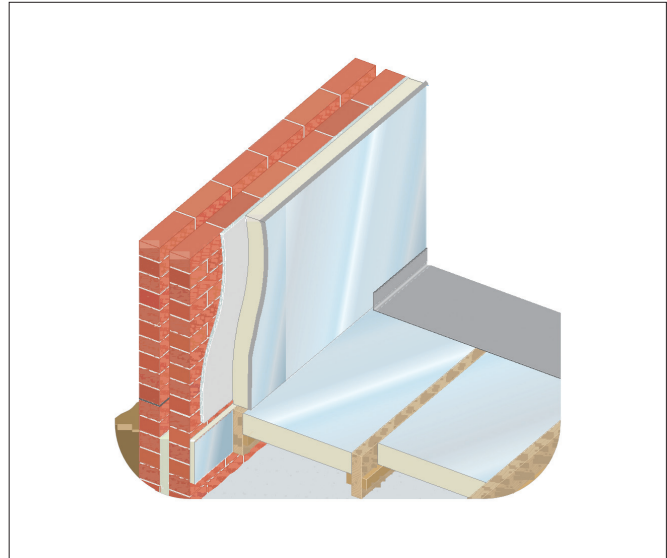
KEY FACTORS ASSESSED

Thermal performance — the product can contribute to limiting heat loss through walls. The U values achieved will depend on the overall construction and insulation thickness (see section 6).

Condensation — the product can contribute to limiting the risk of condensation, however an assessment should be made in each case (see section 7).

Behaviour in relation to fire — the product has a reaction to fire classification of Bs1, d0* to BS EN 13501-1 : 2007 (see section 8).

Durability — under normal conditions, the boards are rot-proof, dimensionally stable and durable and will have a service life equal to the building in which they are installed (see section 14).



The BBA has awarded this Agrément Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

Date of First issue: 24 February 2015

Originally certificated on 27 March 2007

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Ballytherm BTDL Dry Lining Board Insulation, if installed, used and maintained in accordance with this Certificate, can contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement: B2(1)	Internal fire spread (linings)
Comment:	The product can satisfy this Requirement. See section 8.1 of this Certificate.
Requirement: C2(c)	Resistance to moisture
Comment:	The product can contribute to satisfying this Requirement. See sections 7.1 and 7.6 of this Certificate.
Requirement: L1(a)(i)	Conservation of fuel and power
Comment:	The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The product is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation: 26	CO₂ emission rates for new buildings
Regulation: 26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation: 26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation: 26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:	The product can contribute to satisfying these Regulations. See section 6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)	Durability, Workmanship and Fitness of materials
Comment:	The product is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard: 2.5	Internal linings
Comment:	The product can satisfy this Standard, with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See section 8.1 of this Certificate.
Standard: 3.15	Condensation
Comment:	The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See sections 7.1 and 7.7 of this Certificate.
Standard: 6.1(b)	Carbon dioxide emissions
Standard: 6.2	Building insulation envelope
Comment:	The product can contribute to satisfying these Standards, with reference to clauses, or parts of 6.1.1 ⁽¹⁾ , 6.1.2 ⁽¹⁾ , 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾⁽²⁾ , 6.2.4 ⁽¹⁾⁽²⁾ , 6.2.5 ⁽¹⁾⁽²⁾ , 6.2.6 ⁽¹⁾⁽²⁾ , 6.2.7 ⁽¹⁾ , 6.2.8 ⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾⁽²⁾ and 6.2.13 ⁽¹⁾⁽²⁾ . See section 6 of this Certificate.
Standard: 7.1(a)(b)	Statement of sustainability
Comment:	The product can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾] and 7.1.7 ⁽¹⁾⁽²⁾ [Aspect 1 ⁽¹⁾⁽²⁾]. See section 6 of this Certificate.
Regulation: 12	Building standards applicable to conversions
Comment:	Comments made in relation to this product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾ and Schedule 6 ⁽¹⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012

Regulation: 23	Fitness of materials and workmanship
Comment:	The product is acceptable. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation: 29	Condensation
Comment:	The product can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
Regulation: 34	Internal fire spread – Linings
Comment:	The product can satisfy this Regulation. See section 8.1 of this Certificate.
Regulation: 39(a)(i)	Conservation measures
Regulation: 40(2)	Target carbon dioxide emission rate
Comment:	The product can contribute to satisfying these Regulations, however, compensating fabric/services measures may be required. See section 6 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.4) and 15 *Installation* (15.8) of this Certificate.

Additional Information

NHBC Standards 2014

NHBC accepts the use of Ballytherm BTDL Dry Lining Board Insulation, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 8.2 *Wall and ceiling finishes*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13950 : 2014. An asterisk (*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Ballytherm BTDL Dry Lining Board Insulation consists of PIR insulation with bilaminate foil/paper facings on both sides, with one side factory-bonded to tapered edge plasterboard. The boards may be installed either by direct bonding to the wall using plaster adhesive dabs, or by being mechanically fixed either directly to the wall or onto timber battens or metal furring systems. See Table 1 for the nominal characteristics.

Table 1 Nominal characteristics

Length (mm)	2400
Width (mm)	1200
Thickness ⁽¹⁾ (mm)	20 to 80
Plasterboard thickness (mm)	9.5 and 12.5
Nominal density of insulation core (kg·m ⁻³)	30 to 40
Board facings	Bilaminate foil/kraft paper-facing
Edge detail	Plain square edge
Minimum compressive stress at 10% deformation (kPa)*	100

(1) Other thicknesses available subject to quantity.

1.2 Ancillary items which are outside the scope of this Certificate, include:

- gypsum-based dry-lining adhesive compound (plaster dabs) to BS EN 14496 : 2005
- metal component furring systems to BS EN 14195 : 2005
- mechanical fasteners including dry wall screws, plasterboard nails and nailable plugs to BS EN 14566 : 2008
- metal edge and corner beads to BS EN 14353 : 2007
- jointing materials including scrim tape and jointing compound to BS EN 13963 : 2014
- pre-treated softwood timber battens.

2 Manufacture

2.1 The insulation core of Ballytherm BTDL Dry Lining Board Insulation is manufactured by blending together polyol and MDI in a continuous foaming process aided by a blowing agent, and sandwiched between bilaminate foil/kraft paper facings, which is cut to its finished board size. The insulation board is in turn factory-bonded to plasterboard.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the Certificate holder/manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Ballytherm Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and/or BS EN ISO 14001 : 2004 by EQA (Ireland) Ltd Certificates Q3874 and E3874.

3 Delivery and site handling

3.1 The boards are delivered to site in polythene-wrapped packs. Each pack contains a label bearing the manufacturer's name, board dimensions and the BBA logo incorporating the number of this Certificate.

3.2 The boards must be protected from prolonged exposure to sunlight and moisture and should be stored inside, under cover and protected with opaque polythene sheeting. The boards should be stacked flat and raised above ground level, and not in contact with ground moisture.

3.3 Care must be taken when handling the boards to avoid crushing the edges or corners. If damaged the product should be discarded.

3.4 The boards must not be exposed to open flame or other ignition sources.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Ballytherm BTDL Dry Lining Board Insulation.

Design Considerations

4 Use

4.1 Ballytherm BTDL Dry Lining Board Insulation is for use as an insulating dry lining system to improve the thermal insulation of solid or cavity masonry walls of existing and new dwellings and similar buildings. It should be installed in accordance with the Certificate holder's instructions.

4.2 The boards may be installed on masonry construction including clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks. It is essential that such walls are constructed having regard to the local wind-driven rain index.

4.3 Walls should be designed and constructed in accordance with the relevant recommendations of:

- BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and their respective National Annexes
- BS 8000-3 : 2001.

4.4 Since insulating dry-linings are not intended to offer resistance to rain penetration or rising dampness, walls to be insulated with dry-lining must be already rain resistant and show no signs of water ingress or rising damp.

4.5 It is recommended that services which penetrate the dry lining eg light switches and power outlets, are kept to a minimum to limit damage to vapour checks. All perimeters of the board, around service penetrations, openings, junctions and around the perimeter of suspended timber floors must be sealed with a suitable sealant.

4.6 It is essential that the boards are butted as close as possible to minimise any gaps between them (see section 1.6 of this Certificate).

4.7 Where services have to be incorporated behind the dry lining, the wall should be chased rather than the insulation. Suitable isolation methods, such as conduit or capping, must be used to ensure cables do not come into contact with the insulation.


4.8 The installation of the insulating dry-lining system requires careful detailing around doors and windows to achieve a satisfactory surface for finishing. In addition, every attempt should be made to minimise the risk of thermal bridging at reveals and where heavy separating walls are attached to the external wall. New work must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads and sills and in relation to ceiling height. Where the dimensions of fixtures are critical (eg bathrooms), these should be checked before installation.

4.9 If present, mould or fungal growth should be treated prior to the application of the system.

5 Practicability of installation

The product should only be installed by a competent builder, or contractor, experienced with this type of product.

6 Thermal performance

 6.1 Calculations of thermal transmittance (U value) of a specific construction using insulated dry lining should be carried out in accordance with BS EN ISO 6946 : 2007, BRE Report BR 443 : 2006 and BRE Digest 465 : 2002, using the declared thermal conductivity (λ_D^*) value of $0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the insulation component, a design value of $0.19 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the plasterboard, and an aged emissivity (ϵ_D) of 0.9 (to BS 15976 : 2011) for the outer bilaminate foil/kraft paper-facings.

6.2 The U value of a completed wall construction will depend on the insulation thickness, number and type of fixings, the insulating value of the substrate masonry and its finishes. Calculated U values for example constructions are given in Table 2. For improved thermal/carbon emissions performance, the designer should consider additional fabric and/or services measures.

Table 2 Example U values — Solid brickwork wall⁽¹⁾

Target U value (W·m ⁻² ·K ⁻¹)	Ballytherm BTDL Thickness of insulation ⁽²⁾ (mm)	
	Direct bond (plaster dabs) ⁽³⁾	Mechanical fixing to timber battens ⁽⁴⁾
0.18	—	—
0.19	—	—
0.25	80	—
0.26	70	—
0.30	60	80
0.35	50	70

(1) 215 mm thick existing solid brickwork wall (0.77 W·m⁻¹·K⁻¹ thermal conductivity).

(2) Thickness of insulation specified excludes plasterboard thickness of 9.5 mm and 12.5 mm.

(3) Direct bonding with 15 mm plaster adhesive dabs (15 mm air cavity). Boards adhesively fixed in addition to 0.69 fully penetrating steel fixings (50 W·m⁻¹·K⁻¹) per square metre with a cross-sectional area of 18.2 mm² (minimum of two nailable fixings, at midpoint of the board, 25 mm from board edge).

(4) Mechanical fixing to treated softwood timber battens, 22 mm batten cavity. Boards mechanically fixed with 10.35 fully penetrating steel fixings (50 W·m⁻¹·K⁻¹) per square metre with a cross-sectional area of 18.2 mm² (47 mm wide timber battens at 600 mm centres maximum).

Junctions

6.3 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

7 Condensation

Interstitial condensation



7.1 Walls incorporating the system will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011, Annex G and the relevant guidance.

7.2 A condensation risk analysis of the specific construction should be undertaken to BS EN ISO 13788 : 2012 and BS 5250 : 2011 using the water vapour transmission values for each component given in Table 3 for each layer.

Table 3 Water vapour transmission values

Material	Water vapour resistance (MN·s·g ⁻¹)	Water vapour resistivity (MN·s·g ⁻¹ ·m ⁻¹)
Plasterboard	50	—
PIR foam insulation	—	> 50
Bilaminate foil/kraft paperfacing	> 140	—

7.3 Where calculations to Annex D of BS 5250 : 2011 indicate a risk of persistent condensation, a site-specific dynamic analysis to BS EN 15026 : 2007 should be considered.

7.4 To reduce the risk of condensation, insulation shall be continued behind ancillary items fixed to the wall, such as sinks, cupboards. Such ancillary items should be fixed through the insulation to the underlying structural substrate (see section 12 of this Certificate).

7.5 Provided all joints between the product are sealed (see section 4.5 and the Installation part of this Certificate) in accordance with the Certificate holder's instructions, the system can offer a significant resistance to water vapour transmission.

Surface condensation



7.6 Walls incorporating the product will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 0.7 W·m⁻²·K⁻¹ at any point and the junctions with other elements are designed in accordance with section 6.3 of this Certificate.



7.7 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 1.2 W·m⁻²·K⁻¹ at any point. Guidance may be obtained from BS 5250 : 2011, Annex G. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3 of this Certificate.

8 Behaviour in relation to fire



8.1 The product has been classified as Euroclass B-s1, d0* to BS EN 13501-1 : 2007 and is unrestricted with respect to surface spread of flame under the national Building Regulations.

8.2 When properly installed, the insulation will be contained between the wall and internal lining board until one is compromised. Therefore, the insulation will not contribute to the development of a fire or present a smoke or toxic hazard as the fire develops.

8.3 Any cavities formed by the systems (such as those formed between the thermal liner and the substrate wall) must have appropriate fire stopping in accordance with the relevant national Building Regulations:

England and Wales — Approved Document B, Volume 1

Scotland — Mandatory Standard 2.4, clause 2.4.2⁽¹⁾

(1) Technical Handbook (Domestic).

Northern Ireland — Technical Booklet E, paragraphs 4.36 to 4.42.

9 Proximity of flues and appliances

When the product is installed in close proximity to certain flue pipes and or heat producing appliances, the relevant provisions of the national Building Regulations should be met:

England and Wales — Approved Document J

Scotland — Mandatory Standard 3.19, clauses 3.19.1⁽¹⁾ to 3.19.4⁽¹⁾

(1) Technical Handbook (Domestic).

Northern Ireland — Technical Booklet L, sections 1 to 5.

10 Materials in contact — wiring installations

10.1 As with any other form of insulation, de-rating of electrical cables should be considered where the insulation restricts the air cooling of cables.

10.2 Electrical cables likely to come into contact with the insulation component of the thermal liner are not required to be protected by a suitable conduit or PVC-U trunking. The installation of electrical services must be carried out in accordance with BS 7671 : 2008.

11 Infestation

Use of the product does not in itself promote infestation. The creation of voids within the structure, for example gaps between the wall lining and the systems, may provide habitation for insects or vermin in areas already infested. Care should be taken to ensure, wherever possible, that all voids are sealed, as any infestation may be difficult to eradicate. There is no food value in the materials used.

12 Wall-mounted fittings

The recommendations of the Certificate holder must be followed. Any objects fixed to the wall, other than lightweight items, are outside the scope of this Certificate.

13 Maintenance

The product, if damaged during use, can be readily removed and replaced.

14 Durability



Provided the product is fixed to a satisfactory stable and durable wall, it will have a life equal to the building in which it is installed. Under normal conditions of occupancy it is unlikely to suffer damage, but if damage does occur, the product can be repaired or replaced.

Installation

15 General

15.1 The dwelling should be examined for the following:

- suitability of substrate
- detailing around windows and doors
- position and numbers of electrical sockets and switches
- wall fittings and fixtures – including coving and skirting
- areas where flexible sealants must be used
- ventilation plates.

15.2 Before starting to fit the product, the position of all main service cable and pipe runs must be clearly marked on the walls to avoid damage. All plaster coving, skirting board and laminate floor angle beads must be removed.

15.3 A qualified plumber is required to make alterations to heating systems.

15.4 Care must be taken when exposing electrical cables (see section 10). A qualified electrician must be used to make good the electrical wirings and services.

15.5 Before fixing the product, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out (for information see BS 6576 : 2005 for dry-lining in conjunction with a chemical damp-proof course application).

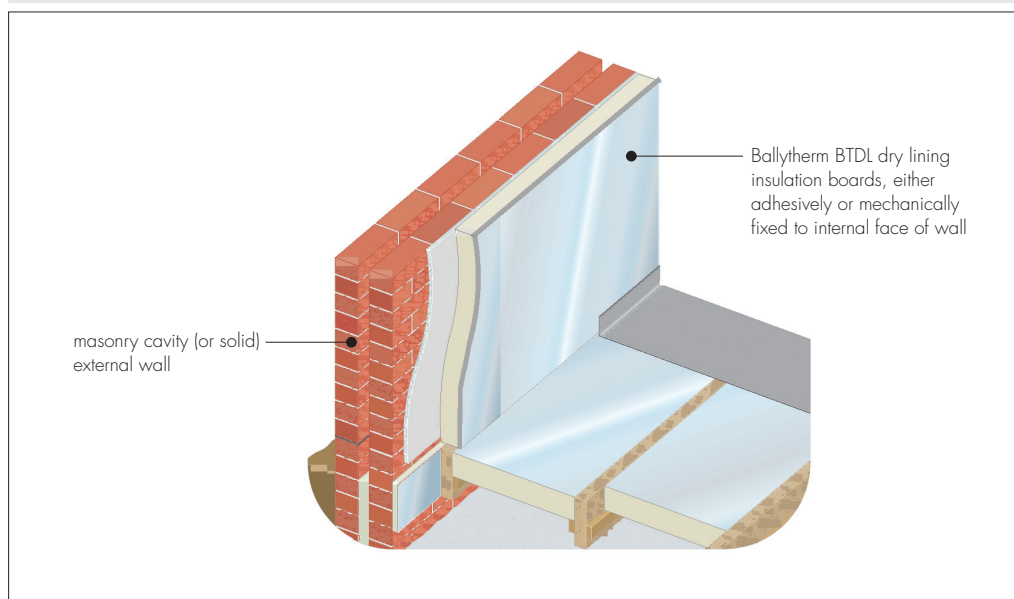
15.6 All insulated dry lining installations require careful planning and setting out. Installation should be in accordance with BS 8212 : 1995, good dry lining practice and the Certificate holder's instructions. A typical installation method is shown in Figure 1.

15.7 Additional consideration should also be given for the fixing of such features as cupboards and radiators.

15.8 The boards can be cut using a fine-toothed saw. Appropriate Personal Protective Equipment (PPE) must be used when cutting the boards, and cutting should be done in a ventilated space, outside or in an area with dust extraction.

15.9 To avoid thermal bridging, the boards should be used to line window reveals. Thinner insulation thicknesses are available (down to 20 mm) for specific use in door and window reveals. Suitable provisions will also need to be adopted at junctions and other details such as separating floors. Further guidance can be obtained from BRE Report BR 262 : 2002.

Figure 1 Ballytherm BTDL Dry Lining



16 Procedure

16.1 For existing walls, wallpaper, skirting, picture rails, gloss paint and projecting window boards should be removed to expose bare walls. The wall surface should be clean and dust free.

16.2 Dry-lining is commenced from a window/door reveal or internal corner. Walls are marked at 1200 mm centres to indicate board positioning.

Direct bonding using plaster adhesive dabs

16.3 A continuous bed of adhesive should be applied around the perimeter of the wall as well as around any services or other openings. This is especially important when considering the airtightness of the building. All conduits and piping should be installed prior to commencement of all works. The insulating backing of the laminates should not be removed to accommodate services.

16.4 Adhesive dabs should be applied in three or four rows (as appropriate, but minimum coverage 20% of the board area) together with intermediate dabs at ceiling level and a continuous band of adhesive at skirting level.

16.5 The boards are positioned with the bottom edge resting on plasterboard packing strips. The boards are tapped into position, lifted tight to the ceiling using a foot-lifter and supported until the adhesive sets. Further boards are installed, lightly butted together, to complete the lining.

16.6 When the adhesive/dabs are set, these should be complimented by the addition of two nailable plugs per board (with a minimum 25 mm penetration into the masonry wall, positioned at mid-height either side of the board and in the tapered edges of boards so they are covered by the finishing processes).

Mechanically fixed to timber battens or metal furrings

16.7 Using suitable mechanical fixings minimum 25 mm thick by 47 mm wide, treated softwood timber battens or proprietary metal furrings are installed vertically at a maximum of 600 mm centres, along with horizontal battens at the top and bottom of the installation area. Additional lengths of timber batten or metal furring should be installed to coincide with horizontal board joints and around services, doors and windows. The framing must provide a minimum of 20 mm bearing at joints and be of sufficient depth to accommodate the fixings for the system. Metal furring systems can also be bonded to the wall in accordance with the manufacturer's recommendations, and the same preparation and setting out procedure should be used. The adhesive dabs should be applied at centres suitable for the system, typically from 450 mm to 600 mm.

16.8 The boards are positioned against the timber or metal frame with the bottom edge resting on plasterboard packing strips, and the boards should be lifted to the ceiling edge using a floor lifter and supported with additional packing at the base of the board. The board is fixed to the timber battens or metal frame using appropriate dry wall screws. Fixings should be installed at 300 mm centres across the horizontal and vertical elements of the frame. Further boards are installed, closely butted together, to complete the lining.

Mechanically fixed direct to wall

16.9 The boards are positioned with the bottom edge resting on plasterboard packing strips. The boards are placed into position, lifted tight to the ceiling using a foot-lifter and supported with additional packing at the base of the board. The board should be fixed to the wall using suitable stainless steel mechanical fixings at 300 mm centres from the vertical and horizontal board edges with a minimum of 12 fixings per board. Further boards are installed, closely butted together, to complete the lining.

17 Finishing

17.1 Jointing and finishing of the plasterboard lining are carried out in the appropriate manner in accordance with BS EN 13914-2 : 2005 applying plasterer's joint tape to all joints and a finishing skim coat of 2 mm of plaster should be applied to complete the installation.

17.2 Any gaps between the ceiling and the wall must be filled.

Technical Investigations

18 Tests

Tests were carried out on Ballytherm BTDL Dry Lining Board Insulation to determine:

- thermal conductivity
- reaction to fire.

19 Investigations

19.1 An assessment was made of the results of test data relating to:

- squareness
- density
- dimensions
- vapour resistance
- flatness
- the declared lambda (λ_D) value
- thermal performance and condensation risk analysis were carried out.

19.2 The manufacturing process was evaluated, including methods for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

- BS 5250 : 2011 *Code of practice for control of condensation in buildings*
- BS 6576 : 2005 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*
- BS 7671 : 2008 *Requirements for electrical installations — IEE Wiring Regulations — Seventeenth Edition*
- BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*
- BS 8212 : 1995 *Code of practice for dry lining and partitioning using gypsum plasterboard*
- BS 15976 : 2011 *Flexible sheets for waterproofing — Determination of emissivity*
- BS EN 1996-1-1 : 2005 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- NA to BS EN 1996-1-1 : 2005 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- BS EN 1996-1-2 : 2005 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
- NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
- BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- NA to BS EN 1996-2 : 2006 *UK National Annex to Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- BS EN 1996-3 : 2006 *Eurocode 6 : Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- NA to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6 : Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- BS EN 13501-1 : 2007 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN 13914-2 : 2005 *Design, preparation and application of external rendering and internal plastering — Design considerations and essential principles for internal plastering*
- BS EN 13950 : 2014 *Gypsum board thermal/acoustic insulation composite panels — Definitions, requirements and test methods*
- BS EN 13963 : 2014 *Jointing materials for gypsum boards — Definitions, requirements and test methods*
- BS EN 14195 : 2005 *Metal framing components for gypsum plasterboard systems — Definitions, requirements and test methods*
- BS EN 14353 : 2007 *Metal beads and feature profiles for use with gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 14496 : 2005 *Gypsum based adhesives for thermal/acoustic insulation composite panels and plasterboards — Definitions, requirements and test methods*
- BS EN 14566 : 2008 *Mechanical fasteners for gypsum plasterboard systems — Definitions, requirements and test methods*
- BS EN 15026 : 2007 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*
- BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BS EN ISO 9001 : 2008 *Quality management systems — Requirements*
- BS EN ISO 13788 : 2012 *Hygrothermal performance of building components and building elements — Internal surface temperature to avoid critical surface humidity and interstitial condensation — Calculation methods*
- BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*
- BRE Report (BR 262 : 2002) *Thermal insulation: avoiding risks*
- BRE Report (BR 443 : 2006) *Conventions for U-value calculations*
- BRE Digest 465 : 2002 *U-values for light steel-frame construction*

20 Conditions

20.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

20.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

20.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

20.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

20.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

20.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.